RECEIVED
CENTRAL FAX CENTER
AUG 20 2007

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | | |
|---|---|---|---|
| Appl. No. | : | 10/814,408 | Confirmation No. 5396 |
| Applicant(s) | : | James R. Lattner | |
| Filed | : | March 31, 2004 | |
| TC/A.U. | : | 1764 | |
| Examiner | : | Jennifer A. Leung | |
| Title | : | Fluid Bed Oxygenates to Olefins Reactor Apparatus and Process of Controlling Same | |
| Atty. Docket No. | : | 2002B139/2 | |
| Customer No. | : | 23455 | |

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**DECLARATION SUBMITTED UNDER 37 C.F.R. § 1.132**

Dear Sir:

I, James R. Lattner, a U.S. citizen, residing at 10 Bay Oaks, LaPorte Texas, 77571, USA, declare and state that:

1. I received a Ph.D. in Chemical Engineering at the University of Houston.

2. Since about 1995, I have engaged in scientific research at ExxonMobil Chemical Company in the field of reaction engineering for our technology that converts methanol to olefins.

3. I am author or co-author of several publications dealing with reaction engineering, primarily for conversion of methanol and other hydrocarbons to synthesis gas and hydrogen.

4. I am the sole inventor of U.S. Patent Application No. 10/814,408 (the '408 application) and am familiar with the subject matter thereof.

5. I have read U.S. Patent Nos. 2,892,773 (the Hirsch patent), 4,092,722 (Hofferber), and 3,213,014 (Atkinson), which are discussed in the July 17, 2006 Office Action, and I am familiar with the subject matter thereof.

6. The Hirsch patent discusses fluidized catalytic cracking processes. At column 1, lines 34-59, the Hirsch patent indicates that fluidized catalytic cracking processes frequently transfer catalyst particles between a reactor and regenerator to transfer heat and restore catalyst activity. As the patent indicates, these processes typically circulate the particles between the reactor and regenerator using "hydrostatic" head as the driving force.

7. The Hirsch patent further indicates at column 2, lines 40-52, that the invention in the patent involves circulating catalyst particles in a continuous manner from a catalyst hopper through a reaction vessel and back to the catalyst hopper, and then transferring the catalyst particles from the hopper to a second reaction vessel by periodically changing direction of pressure differential between the hopper and second reaction vessel. Column 4, lines 32-61; column 5, lines 53-75; and column 6, lines 1-13, 20-35 and 43-51, indicate that the second reaction vessel is the regenerator 40, and that a differential pressure controller 47 works in conjunction with a timer 48 to control flow of catalyst between the hopper 16 and the regenerator 40 based on differences in pressure between the two vessels. More specifically the differential pressure controller 47 works in conjunction with the timer 48 to control the opening and closing valves 46, 60, 68, 70 and 62. The opening and closing of the various valves control the rate and direction of flow of catalyst between the hopper 16 and the regenerator 40.

8. I have read the Final Office Action mailed March 21, 2007 and the Advisory Action mailed June 13, 2007. As I understand those Actions, the examiner has concluded that the Hirsh patent differs from the invention of the '408 application in that Hirsch does not disclose a regenerator catalyst circulation control means for controlling passage of the catalyst from the regenerator outlet and lift gas riser as a function of riser reactor temperature. However, I understand that the examiner further concludes that because the Hofferber patent discloses the use of a controller that is capable of controlling temperature of a catalyst reactor by controlling flow through a riser, it would have been obvious to substitute a temperature control valve like

that used in Hofferber for valve 60 in Hirsch. For the reasons stated in paragraphs 9 and 10, this conclusion is incorrect.

9. Hofferber discloses temperature control of a catalytic cracker reactor. The temperature in the reactor is controlled by controlling flow of catalyst through a valve 9 in pipe 8 that feeds catalyst to a riser pipe 3 that empties into the reactor 1. A thermocouple 13 is placed in the riser pipe to read the temperature of the catalyst in the riser pipe, and a thermocouple 12 is placed in the catalyst bed 2. Controllers 52 and 53 are used to control the opening and closing of valve 9 to adjust the temperature of the bed in the reactor.

10. In my opinion, replacing flow control valve 60 of Hirsch with the flow control valve 9 of Hofferber would not lead to a functioning system. This is because the Hirsch system depends on each of the valves 46, 60, 68, 70 and 62 to work in conjunction with the timer 48 and the differential pressure controller 47 to control the rate and direction of flow of catalyst between the hopper 16 and the regenerator 40. If any one of these valves were disconnected from the timer and pressure controller, then flow rate, direction or both would be completely disrupted. If Hofferber's temperature controlled valve 9 were substituted for Hirsch's valve 60, there would be no way to regulate flow of catalyst from the regenerator 40 to the hopper 16, since directional flow is based on pressure control between regenerator 40 and hopper 16. This means that switching a flow control valve for a temperature controlled valve in Hirsch's transfer line 58 would completely destroy the ability to send catalyst from the regenerator 40 to the hopper 16, thereby shutting down the entire system. Therefore, one that understands the type of processes used by Hirsch and Hofferber would not substitute a temperature controlled type valve arrangement for a pressure controlled type arrangement and expect to have a functioning system.

11. It is also my understanding that the examiner has concluded that the Hirsch patent differs from the invention of the '408 application in that Hirsch does not disclose a catalyst circulation control valve means for controlling circulation of catalyst from the disengaging vessel to the riser reactor as a function of difference in pressure between an upper and lower portion of the riser reactor. However, I understand that the examiner further concludes that because the Atkinson patent discloses the use of a controller that uses a differential pressure reading in the transfer conduit between the regenerator and reactor, it would have been obvious to substitute a

type of differential pressure control valve for Hirsch's valves 28a, 28b. For the reasons stated in paragraphs 12 and 13, this conclusion is also incorrect.

12. Atkinson discloses means for indirectly determining catalyst activity by determining the heat content of the materials passing into the reactor at two different points of travel through a transfer conduit 18, in which catalyst is passed from the regenerator 13 to a reactor 11. Atkinson uses temperature and pressure differentials of the catalyst passing through the transfer conduit to calculate the heat load and adjust the flow of catalyst through the transfer line 18 or the flow of oxygen to a transfer conduit 36, in which catalyst is passed from the reactor 11 back to the regenerator 13.

13. Atkinson does not have any valve that controls transfer of catalyst from a disengaging vessel for receiving riser reactor effluent back to the riser reactor as is stated in claim 1. The only vessel in Atkinson that might be considered a type of disengaging vessel for receiving riser reactor effluent is the reactor vessel 11. The only portion of Atkinson's reactor system that might be considered equivalent to an actual riser reactor is the upper end of transfer conduit 18 as it approaches the reactor 11. Atkinson does not have a line connecting the reactor vessel to the riser conduit. Because this line itself does not exist, Atkinson can not disclose any valve capable of controlling circulation of catalyst from a disengaging vessel for receiving riser reactor effluent back to a riser reactor as a function of pressure. Therefore, it is incorrect to conclude that it would have been obvious to one that adequately understands the type of processes used by Hirsch and Atkinson to substitute any Atkinson valve for valves 28a, 28b of Hirsch.

14. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that theses statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the captioned application or any patent issued therefrom.

Further declarant sayeth not.

Aug 14, 2007
Date

James R. Lattner